

**08-SC-01, Advanced Light Source User Support Building,  
Lawrence Berkeley National Laboratory, Berkeley, California  
Project Data Sheet is for Construction**

**1. Significant Changes**

The most recent DOE O 413.3A approved Critical Decision (CD) is CD-1/2/3, Approve Alternative Selection, Performance Baseline, and Start of Construction, which was approved on November 27, 2006 with a Total Project Cost of \$32,800,000. CD-1/2/3 was granted with the condition that the Acquisition Executive concur that adequate contingency had been reserved prior to award of the Design-Build contract. This condition was satisfied in May 2007.

A Federal Project Director with certification level II has been assigned to this project.

This Project Data Sheet (PDS) is an update of the FY 2008 PDS. A significant change is that PED funds were reduced by a directed change from \$3,000,000 to \$1,500,000, with \$1,500,000 being added to Construction. Accordingly, additional OPC efforts are required for revision of design requirements and other project documents. The project is a Design-Build contract, which shifts some construction cost risk to the construction subcontractor. A more significant change is the reduction of FY 2008 Construction funds to \$4,954,000. Overall scope is unchanged, however project completion is delayed by approximately 17 months, and cost is increased due to escalation and additional efforts associated with the extended schedule.

**2. Design, Construction, and D&D Schedule**

(fiscal quarter or date)

	CD-0 <sup>a</sup>	CD-1 (Design Start)	(Design/PED Complete)	CD-2	CD-3 (Construction Start)	CD-4 (Construction Complete)	D&D Start	D&D Complete
FY 2007	04/23/2003	1Q FY 2007	2Q FY 2008	N/A	N/A	N/A	N/A	N/A
FY 2008	04/23/2003	1Q FY 2007	2Q FY 2008	1Q FY 2007	1Q FY 2007	3Q FY 2010	1Q FY 2007	4Q FY 2007
FY 2009	04/23/2003	11/27/2006 <sup>b</sup>	2Q FY 2008	11/27/2006 <sup>b</sup>	11/27/2006 <sup>b</sup>	1Q FY 2012 <sup>c</sup>	12/01/2006	4Q FY 2007

CD-0 – Approve Mission Need

CD-1 – Approve Alternative Selection and Cost Range

CD-2 – Approve Performance Baseline

CD-3 – Approve Start of Construction

CD-4 – Approve Start of Operations or Project Closeout

D&D Start – Start of Demolition & Decontamination (D&D) work

D&D Complete –Completion of D&D work

<sup>a</sup> CD-0 was signed April 23, 2003 with a TPC range of \$18,000,000 to \$20,000,000, but the project did not move forward due to higher funding priorities. Sponsorship has since transferred from the Office of Laboratory Policy and Infrastructure to the Scientific User Facilities Division of the Office of Basic Energy Sciences. The cost range increased significantly, and project milestones have been updated.

<sup>b</sup> CD-1/2/3 was granted with the condition that the Acquisition Executive concur that adequate contingency has been reserved prior to award of the Design-Build contract. The condition was satisfied in May 2007.

<sup>c</sup> The reduction of FY 2008 Construction funds has delayed project completion approximately 17 months. This column reflects CD-4 (Project Completion), not Construction Completion.

### 3. Baseline and Validation Status

(dollars in thousands)

	TEC, PED	TEC, Construction	TEC, Total	OPC Except D&D	OPC, D&D	OPC, Total	TPC
FY 2007	3,000	TBD	TBD	400	N/A	400	TBD
FY 2008 <sup>a</sup>	3,000	27,200	30,200	1,200	1,400	2,600	32,800
FY 2009 <sup>b</sup>	1,500	34,200	35,700	1,220	1,400	2,620	38,320

### 4. Project Description, Justification, and Scope

At Lawrence Berkeley National Laboratory (LBNL), there is a critical shortage of high quality user support space. Users are presently accommodated in Building 10 and adjacent spaces that are ill-suited for the current use and in the case of Building 10, structurally deficient. This shortage of suitable space for users creates significant impediments to the attainment of mission objectives. The User Support Building (USB) will support the Advanced Light Sourced (ALS), the Office of Science's only third generation synchrotron radiation source optimized for Ultraviolet and soft x-rays. The unique science being performed at the ALS cannot be supported by facilities at any other location. In particular, assembly of experimental equipment for use at the ALS needs to be performed in high-quality space located adjacent to the facility. The project is consistent with LBNL's Strategic Facilities Plan. This project will provide an approximately 30,000 gross square foot (gsf) new facility that includes a high bay for assembly of experimental equipment, precision component assembly areas, wet laboratories, and office space. It will be designed to support over 2,000 users that utilize the ALS annually. The scope of the project includes demolition costs for the existing Building 10, a 15,200 gsf building located on the site of the future USB. Building 10 has been rated as seismically "very poor," and is beyond economic repair. The USB project scope will also include site improvements to provide better access to the new facility. Sustainable building principles will be incorporated into the design and construction.

The FY 2007 funding was used to secure a Design-Build contractor and start to prepare design documents for Critical Decisions. In addition, site preparation was completed.

The FY 2008 funding will be used to complete preparation of the construction solicitation package(s) and perform Title II design services.

The FY 2009 funding will be used to award contract(s) as appropriate and continue the Design-Build construction project efforts.

The project is being conducted in accordance with the project management requirements in DOE O 413.3A and DOE M 413.3-1, Program and Project Management for the Acquisition of Capital Assets, and all appropriate project management requirements have been met.

<sup>a</sup> TEC Construction and TPC figures are CD-1/2/3 was granted with the condition that the Acquisition Executive concur that adequate contingency has been reserved prior to award of the Design-Build contract. The condition was satisfied in May 2007.

<sup>b</sup> The reduction of FY 2008 Construction funds to \$4,954,000 instead of the planned \$17,200,000 has delayed project completion approximately 17 months. This delay has also increased the cost due to escalation and additional efforts associated with the extended schedule. A baseline change proposal will be approved in the 2Q FY 2008.

## 5. Financial Schedule

(dollars in thousands)

	Appropriations	Obligations	Costs
Total Estimated Cost (TEC)			
PED			
FY 2007	1,500	1,500	774
FY 2008	—	—	726
Total, PED (PED no. 07-SC-12)	1,500	1,500	1,500
Construction			
FY 2008	4,954 <sup>a</sup>	4,954 <sup>a</sup>	1,997
FY 2009	11,500	11,500	1,653
FY 2010	17,746 <sup>a</sup>	17,746 <sup>a</sup>	17,627
FY 2011	—	—	12,923
Total, Construction	34,200	34,200	34,200
TEC			
FY 2007	1,500	1,500	774
FY 2008	4,954	4,954	2,723
FY 2009	11,500	11,500	1,653
FY 2010	17,746	17,746	17,627
FY 2011	—	—	12,923
Total, TEC	35,700	35,700	35,700
Other Project Cost (OPC)			
OPC except D&D			
FY 2006	1,050	1,050	746
FY 2007	30	30	331
FY 2011	140	140	143
Total, OPC except D&D	1,220	1,220	1,220
D&D			
FY 2007	1,400	1,400	1,384
FY 2008	—	—	16
Total D&D	1,400	1,400	1,400

<sup>a</sup> Construction funding was reduced by \$12,200,000 as a result of the FY 2008 appropriation and by \$46,000 as a result of FY 2008 rescission. These reductions are restored in FY 2010.

	(dollars in thousands)		
	Appropriations	Obligations	Costs
OPC			
FY 2006	1,050	1,050	746
FY 2007	1,430	1,430	1,715
FY 2008	—	—	16
FY 2011	140	140	143
Total, OPC	2,620	2,620	2,620
Total Project Cost (TPC)			
FY 2006	1,050	1,050	746
FY 2007	2,930	2,930	2,489
FY 2008	4,954	4,954	2,739
FY 2009	11,500	11,500	1,653
FY 2010	17,746	17,746	17,627
FY 2011	140	140	13,066
Total, TPC	38,320	38,320	38,320

## 6. Details of Project Cost Estimate

	(dollars in thousands)		
	Current Total Estimate <sup>a</sup>	Previous Total Estimate	Original Validated Baseline
Total Estimated Cost (TEC)			
Design (PED)			
Design	1,490	2,500	2,660
Contingency	10	500	340
Total, PED (PED no. 07-SC-12)	1,500	3,000	3,000
Construction			
Site Preparation	2,000	1,194	2,275
Equipment	—	—	—
Other Construction	28,800	21,474	20,885
Contingency	3,400	4,532	4,040
Total, Construction	34,200	27,200	27,200
Total, TEC	35,700	30,200	30,200
Contingency, TEC	3,410	5,032	4,380

<sup>a</sup> The reduction of FY 2008 Construction funds to \$4,954,000 instead of the planned \$17,200,000 has delayed project completion approximately 17 months. This delay has also increased the cost due to escalation and additional efforts associated with the extended schedule. A baseline change proposal will be approved in the 2Q FY 2008.

(dollars in thousands)

	Current Total Estimate <sup>a</sup>	Previous Total Estimate	Original Validated Baseline
Other Project Cost (OPC)			
OPC except D&D			
Conceptual Planning	584	554	549
Conceptual Design	496	496	496
Start-Up	128	150	150
Contingency	12	—	5
Total, OPC except D&D	1,220	1,200	1,200
D&D			
D&D	1,368	1,162	1,160
Contingency	32	238	240
Total, D&D	1,400	1,400	1,400
Total, OPC	2,620	2,600	2,600
Contingency, OPC	44	238	245
Total, TPC	38,320	32,800	32,800
Total, Contingency	3,454	5,270	4,625

## 7. Schedule of Project Costs

For Schedule of project costs, see Section 5, “Financial Schedule.”

## 8. Related Operations and Maintenance Funding Requirements

Start of Operation or Beneficial Occupancy (fiscal quarter or date)	1Q FY 2012
Expected Useful Life (number of years)	30
Expected Future start of D&D of this capital asset (fiscal quarter)	FY 2042

### (Related Funding Requirements)

(dollars in thousands)

	Annual Costs		Life Cycle Costs	
	Current Estimate	Prior Estimate	Current Estimate	Prior Estimate
Operations	91	85	4,141	2,177
Maintenance	419	71	19,041	1,760
Total Operations and Maintenance	510	156	23,182	3,937

## 9. Required D&D Information

Area	Square Feet
Area of new construction	30,000
Area of existing facilities being replaced	15,200
Area of additional D&D space to meet the “one-for-one” requirement	N/A (see below)

Name and site location of existing facility to be replaced: Building 10 at Lawrence Berkeley National Laboratory.

The “one-for-one” square footage offset will come from the demolition of Building 10 (15,200 GSF), and from excess space already banked (14,800 GSF).

LBNL used a consensus standard (FEMA 310 and ASCE 31) to reevaluate the seismic condition of all occupied buildings, in order to comply with University of California policy and with a Presidential Order. A structural engineering firm was hired to provide the evaluations, which were subsequently validated by an LBNL structural engineer. Building 10 was rated as “very poor,” meaning that a significant life safety risk would be posed by a structural collapse of the building in the event of a 7.0 earthquake on the Hayward Fault. The USGS predicts that there is a 30% likelihood that such an earthquake will occur in the next 30 years.

LBNL management provided overhead funds to evacuate all staff from the building; however, removing the building's occupants does not sufficiently mitigate the life safety risk posed by Building 10 as a result of the predicted earthquake. First, the west side of Building 10 directly abutting the ALS (Building 6) could collapse, posing a significant life safety risk to ALS staff and scientific users inside the ALS. Second, the existing one lane road, which provides the only fire truck access to Building 80 (with offices and labs for roughly 100 staff and users) and to a portion of Building 6, runs directly alongside and behind Building 10. A collapse of Building 10 could likely block that road, preventing fire truck and emergency vehicle access to a significant population.

## 10. Acquisition Approach

The Acquisition Strategy document for the USB was approved November 27, 2006, prior to CD-1. The general approach is outlined here. The Management and Operating (M&O) contractor, LBNL, serves as the prime contractor for the project rather than having DOE provide that function; which is considered more efficient and in the best interest of the Government. Laboratory construction projects are within the scope of the University of California's contract, and the Laboratory has traditionally managed construction projects in its management and operations role for the facility. The laboratory maintains a staff of project managers, architects and engineers, and procurement specialists for the purpose of awarding and managing architect/engineer (A/E) and construction subcontracts. New buildings constructed on the site are subject to University of California review and approval because the Laboratory is owned by the University. Different contracting methods were considered; the bulk of the project will be executed by means of a Design-Build (D-B) contract as explained below.

The Laboratory contracted design services by means of a traditional A/E subcontract for preparation of the conceptual design, the 20% design, and the D-B technical Request for Proposal (RFP) to secure the D-B subcontractor.

To reduce risk for the project and the D-B subcontractor, demolition of Building 10 is performed under a separate fix-priced, best value subcontract, in advance of the D-B subcontract. The Demolition

subcontractor was selected using a best-value source selection procedure, to balance cost and other factors such as safety management, experience and qualifications of key personnel, and past performance of similar projects.

The Design-Build RFP specification package for construction of the new facility is a performance work statement that forms the basis for a D-B, firm-fixed-price, best value solicitation. The Design-Build specification package is sufficiently detailed to allow prospective design and construction firms to formulate firm-fixed-price offers without excessive contingency and allowances. Selection of a highly qualified contractor, experienced in design-build construction, through best value source selection assures development of the most efficient and cost-effective design. Environmental, Safety and Health concerns are a consideration in selection of contractors. The straightforward design, which is well documented in the performance specifications of the project, along with conventional construction techniques, materials and equipment, support the use of the D-B project delivery method on this project. Schedule efficiencies gained by using the Design-Build delivery method would allow the USB to be operational by the planned CD-4 date of 1st Quarter, FY 2012. Based on these considerations, the Design-Build delivery method was preferred, and a Design-Build contractor was selected.

The existing Design-Build subcontract will be utilized to complete preparation of the construction solicitation package. Construction will be contracted via best value source selection.